

1 1.(original) A pharmaceutical composition for treating osteoporosis comprising at least one  
2 zwitterionic phospholipid and at least one bisphosphonate.

1 2.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2 amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in  
3 an amount sufficient to reduce bone resorption.

1 3.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2 amount sufficient to reduce GI toxicity of the bisphosphonate and improve bisphosphonate bio-  
3 availability when the composition is taken with food and the bisphosphonate is present in an amount  
4 sufficient to reduce bone resorption, increase in bone density and/or reduce bone fractures.

1 4.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2 0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to zwitterionic  
3 phospholipid is between about 1:0.1 and about 1:100.

1 5.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2 1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3 is between about 1:0.5 and about 1:50.

1 6.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2 2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3 is between about 1:1 and about 1:10.

1 7.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2 2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3 is between about 1:1 and about 1:5.

1 8.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2 amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in  
3 an amount sufficient to reduce bone resorption, increase in bone density and/or reduce bone  
4 fractures.

1 9.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to  
3 zwitterionic phospholipid is between about 1:0.1 and about 1:100.

1 10.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to  
3 zwitterionic phospholipid is between about 1:0.5 and about 1:50.

1 11.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic  
3 phospholipid is between about 1:1 and about 1:10.

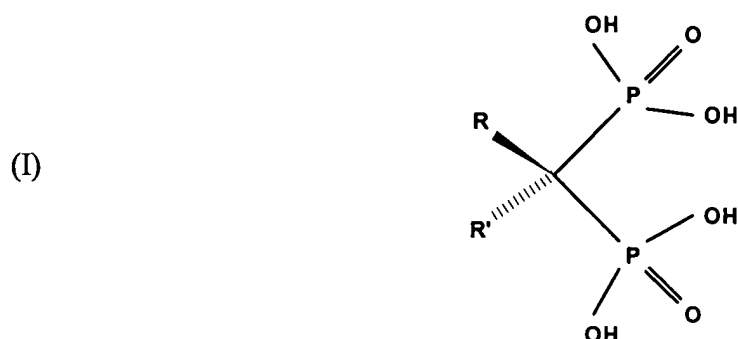
1 12.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic  
3 phospholipid is between about 1:1 and about 1:5.

1 13.(original) The composition of claim 1, wherein the zwitterionic phospholipid increases the bio-  
2 availability of the bisphosphonate from about 2 to about 20 fold.

1 14.(original) The composition of claim 1, wherein the bisphosphonate is in its zwitterionic form  
2 and forms an ionic association complex with the zwitterionic phospholipid.

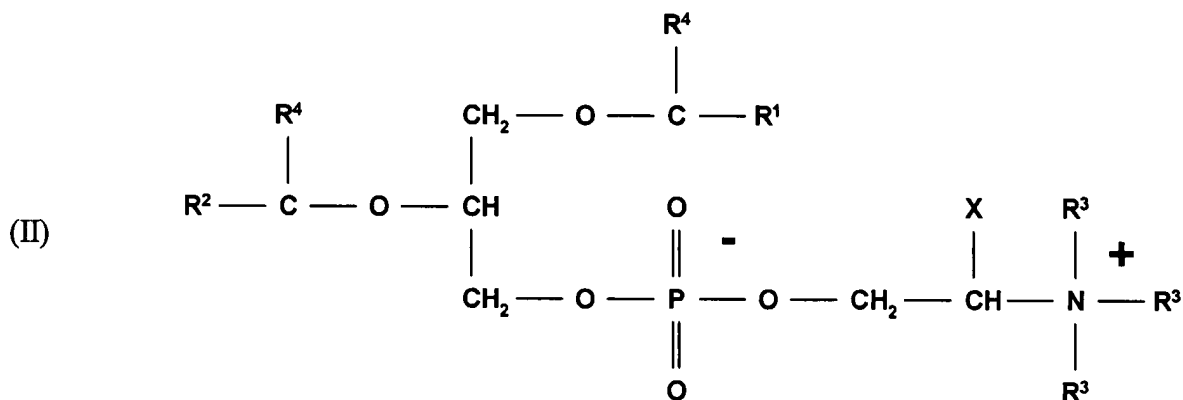
1 15.(original) The composition of claim 1, further comprising a colloidal metal, a metal complex  
2 or a mixture or combination thereof.

16.(original) The composition of claim 1, wherein the bisphosphonate is characterized by the general formula (I):



where R' is H, OH or Cl and R is: (a) an alkyl group having 1 to 6 carbon atoms, optionally substituted with amino, alkylamino, dialkylamino or heterocyclyl, where the alkyl groups in alkylamino and dialkylamino substituents have 1 to 5 carbon atoms and are the same or different in the case of the dialkylamino substituted alkyl groups; (b) a halogen; (c) an arylthio, preferably chlorosubstituted; (d) a cycloalkylamino having 5 to 7 carbon atoms; or (e) a saturated five or six membered nitrogen containing heterocyclyl having 1 or 2 heteroatoms.

17.(original) The composition of claim 1, wherein the phospholipid is characterized by the of general formula (II):



where R<sub>1</sub> and R<sub>2</sub> are saturated or unsaturated substitutions ranging from 8 to 32 carbon atoms; R<sub>3</sub> is H or CH<sub>3</sub>, and X is H or COOH; and R<sub>4</sub> is =O or H.

18.(original) The composition of claim 1, wherein the bisphosphonate is selected from the group consisting of 3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid (pamidronate), 4-amino-1-

1 hydroxybutylidene-1,1-bisphosphonic acid (alendronate), N,N-dimethyl-3-amino-1-  
2 hydroxypropylidene-1,1-bisphosphonic acid (mildronate, olpadronate), 1-hydroxy-3- (N-methyl-N-  
3 pentylamino) propylidene-1,(N-methyl-N-pentylamino) propylidene-1, 1-bisphosphonic acid  
4 (ibandronate), 1-hydroxy-2-(3-pyridyl) ethylidene-1,(3-pyridyl) ethylidene-1, 1-bisphosphonic acid  
5 (risedronate), 1-hydroxyethylidene-1,1-bisphosphonic acid (etidronate), 1-hydroxy-3- (1-  
6 pyrrolidinyl) propylidene-1,1-bisphosphonic acid, 1-hydroxy-2- (1-imidazolyl) ethylidene-1, 1-  
7 bisphosphonic(1-imidazolyl) ethylidene-1, 1-bisphosphonic acid (zoledronate), 1-hydroxy-2-  
8 (imidazo [1,2-a] pyridin-3-yl) ethylidene-1,1-bisphosphonic acid (minodronate), 1- (4-  
9 chlorophenylthio) methylidene-1, 1-bisphosphonic acid (tiludronate), 1- (cycloheptylamino)  
10 methylidene-1,1-bisphosphonic acid (cimadronate, incadronate), 6-amino-1-hydroxyhexylidene-1,1-  
11 bisphosphonic acid (neridronate) and pharmaceutically acceptable salts thereof and mixtures and  
12 combinations thereof.

1 19.**(original)** The composition of claim 1, wherein the bisphosphonate is selected from the group  
2 consisting of risedronate, alendronate, pamidronate and their pharmaceutically acceptable salts and  
3 mixtures and combinations thereof.

1 20.**(original)** The composition of claim 1, wherein the zwitterionic phospholipid is selected from  
2 the group consisting of phosphatidyl choline, phosphatidyl ethanolamines, phosphatidylinositol,  
3 phosphatidyl serines sphingomyelin or other ceramides, phospholipid containing oils, and mixtures  
4 and combination thereof.

1 21.**(original)** The composition of claim 1, wherein the zwitterionic phospholipid is selected from  
2 the group consisting of phosphatidyl choline (PC), dipalmitoylphosphatidylcholine (DPPC), other  
3 disaturated phosphatidyl choline, lecithin oils and mixture and combinations thereof.

1 22.**(original)** A pharmaceutical composition, for treating osteoporosis, comprising a  
2 pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient  
3 amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the  
4 bisphosphonate.

1 23.**(original)** The composition of claim 22, the effective amount of the bisphosphonate comprises

1 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of  
2 zwitterionic phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is  
3 between about 1:0.1 and about 1:100.

1 24.(original) The composition of claim 22, further comprising a colloidal metal, a metal complex  
2 or mixtures or combinations thereof.

1 25.(original) A pharmaceutical composition comprising a carrier, a pharmaceutically effective  
2 amount of a bisphosphonate to reduce bone resorption and a sufficient amount of a zwitterionic  
3 phospholipid to reduce GI toxicity and increase the bio-availability of the bisphosphonate, where  
4 the phospholipid is in its zwitterionic form and the bisphosphonate is in its zwitterionic form.

1 26.(original) The composition of claim 25, wherein effective amount of the bisphosphonate is  
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of  
3 zwitterionic phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is  
4 between about 1:0.1 and about 1:100.

1 27.(original) The composition of claim 25, further comprising a colloidal metal, a metal  
2 complex or mixtures or combinations thereof.

1 28.(original) The composition of claim 25, wherein the medication is to be taken orally.

1 29.(original) The medication of claim 25, wherein the medication is to be taken orally with food.

1 30.(original) An oral medication for treating osteoporosis comprising an solid object comprising  
2 an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone resorption and  
3 an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase the bio-  
4 availability of the bisphosphonate.

1 31.(original) The medication of claim 30, wherein the effective amount of the bisphosphonate is  
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of

1 zwitterionic phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is  
2 between about 1:0.1 and about 1:100.

1 32.(original) The medication of claim 30, further comprising a colloidal metal, a metal complex  
2 or a mixture or combination thereof.

1 33.(withdrawn)

1 34.(withdrawn)

1 35.(withdrawn)

1 36.(withdrawn)

1 37.(withdrawn)

1 38.(withdrawn)

1 39.(withdrawn)

1 40.(withdrawn)

1 41.(withdrawn)

1 42.(withdrawn)

1 43.(withdrawn)

1 44.(withdrawn)

1 45.(withdrawn)

1 46.(new) A pharmaceutical composition for treating osteoporosis comprising at least one  
2 zwitterionic phospholipid and at least one bisphosphonate, where the phospholipid is in its  
3 zwitterionic form and the bisphosphonate is in its zwitterionic form.

1 47.(new) A pharmaceutical composition, for treating osteoporosis, comprising a  
2 pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient  
3 amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the  
4 bisphosphonate, where the phospholipid is in its zwitterionic form and the bisphosphonate is in its  
5 zwitterionic form.

1 48.(new) An oral medication for treating osteoporosis comprising an solid object comprising  
2 an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone resorption and  
3 an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase the bio-  
4 availability of the bisphosphonate, where the phospholipid is in its zwitterionic form and the  
5 bisphosphonate is in its zwitterionic form.